

## CHAPTER 5

### WATER QUALITY PARTNERSHIPS IN THE LITTLE TENNESSEE RIVER WATERSHED

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**5.1. BACKGROUND.** The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Tennessee portion of the Little Tennessee River Watershed. The information presented is provided by the agencies and organizations described.

## 5.2. FEDERAL PARTNERSHIPS.

**5.2.A. Natural Resources Conservation Service.** The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance Results System (PRS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRS may be viewed at <http://prms.nrcs.usda.gov/prs>. From the opening menu, select "Reports" in the top tool bar. Next, select "2004 Reports" if it's active, and "2003 PRMS Reports" if it's not. Pick the conservation treatment of interest on the page that comes up and reset the date to 2004 Reports if it is not set there. Pick the conservation practice of interest. In the location drop box of the page that comes up, select "Tennessee" and click on the "Refresh" button. In the "By" drop box that comes up, select "Hydrologic Unit" and click on the "Refresh" button. The report of interest can now be viewed.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	TOTAL	
	FEET	ACRES
Comprehensive Nutrient Management Plans		3,110
Pest Management		2,779
Grazing/Forages Practices		3,122

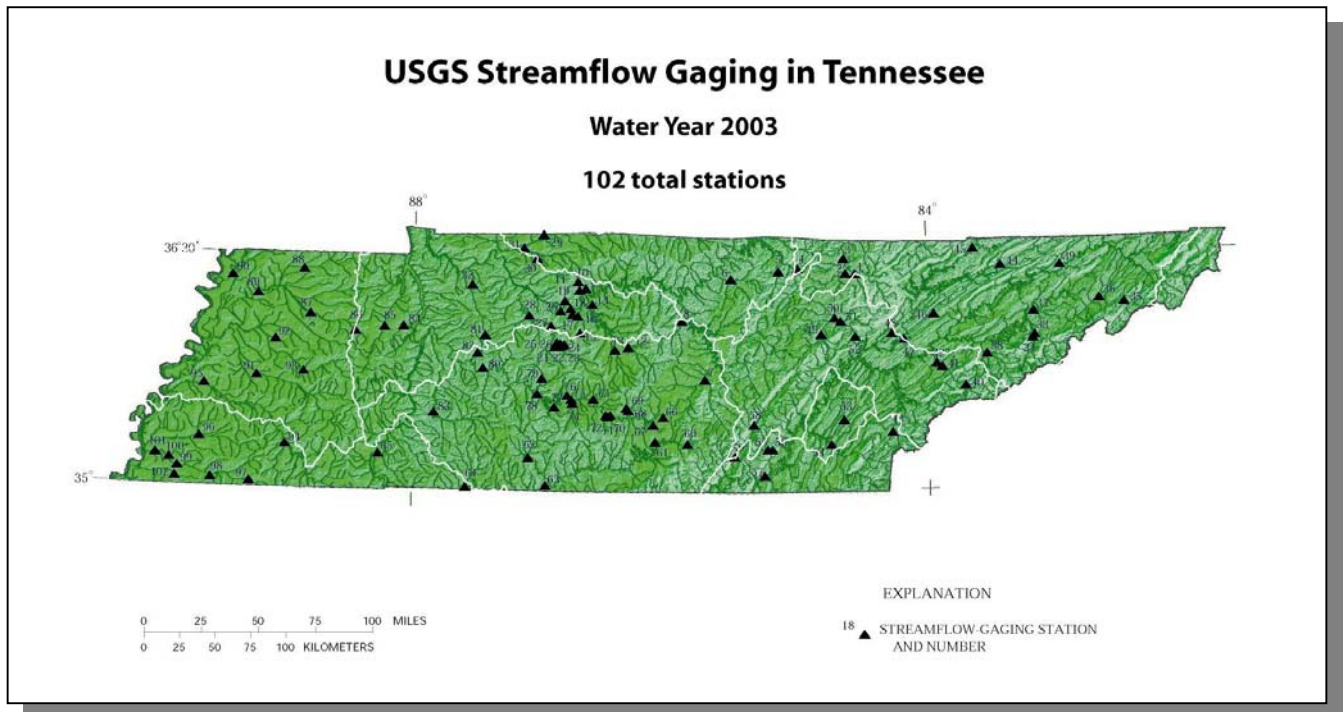
**Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Little Tennessee River Watershed.** Data are from PRMS for October 1, 2003 through September 30, 2004 reporting period. More information is provided in Appendix V.

**5.2.B. United States Geological Survey Water Resources Programs – Tennessee District** The U.S. Geological Survey (USGS) provides relevant and objective scientific studies and information for public use to evaluate the quantity, quality, and use of the Nation's water resources. In addition to providing National assessments, the USGS also conducts hydrologic studies in cooperation with numerous Federal, State, and local agencies to address issues of National, regional, and local concern. Please visit <http://water.usgs.gov/> for an overview of the USGS, Water Resources Discipline.

The USGS collects hydrologic data to document current conditions and provide a basis for understanding hydrologic systems and solving hydrologic problems. In Tennessee, the USGS records streamflow continuously at more than 102 gaging stations equipped with recorders and makes instantaneous measurements of streamflow at many other locations. Ground-water levels are monitored Statewide, and the physical, chemical, and biologic characteristics of surface and ground waters are analyzed. USGS activities also

include the annual compilation of water-use records and collection of data for National baseline and water-quality networks. National programs conducted by the USGS include the National Atmospheric Deposition Program (<http://bgs.usgs.gov/acidrain/>), National Stream Quality Accounting Network (<http://water.usgs.gov/nasqan/>), and the National Water-Quality Assessment Program (<http://water.usgs.gov/nawqa/>). For specific information on the Upper and Lower Tennessee NAWQA studies, please visit <http://tn.water.usgs.gov/lten/tenn.html>

*USGS Water Resources Information on the Internet.* Real-time and historical streamflow, water levels, and water-quality data at sites operated by the Tennessee District can be accessed at <http://waterdata.usgs.gov/tn/nwis/nwis>. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus. Contact Donna Flohr at (615) 837-4730 or [dfflohr@usgs.gov](mailto:dfflohr@usgs.gov) for specific information about streamflow data. Recent publications by the USGS staff in Tennessee can be accessed by visiting <http://tn.water.usgs.gov/pubpg.html>. This web page provides searchable bibliographic information to locate reports and other products about specific areas.



**5.2.C. U.S. Fish and Wildlife Service.** The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife Service (Service) works with State and Federal agencies and Tribal governments, helps corporate and private landowners conserve habitat, and cooperates with other nations to

halt illegal wildlife trade. The Service also administers a Federal Aid program that distributes funds annually to States for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from Federal excise taxes on fishing, hunting, and boating equipment.

### *Endangered Species Program*

Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program. Federally endangered and threatened species in the Little Tennessee River Watershed include the Indiana bat (*Myotis sodalis*), bald eagle (*Haliaeetus leucocephalus*), spotfin chub (*Cyprinella* (= *Hybopsis*) *monacha*), smoky madtom (*Noturus baileyi*), yellowfin madtom (*Noturus flavipinnis*), duskytail darter (*Etheostoma percnurum*), Anthony's riversnail (*Athearnia anthonyi*), and Virginia spiraea (*Spiraea virginiana*). Federally designated critical habitat for the endangered smoky madtom exists in Citico Creek, from the Cherokee National Forest boundary at upper Citico bridge on Mountain Settlement Road (milepoint 4.3) upstream to the confluence of Citico Creek with Barkcamp Branch (milepoint 10.8), in Monroe County. For a complete listing of endangered and threatened species in Tennessee, please visit the Service's website at <http://www.fws.gov/cookeville/>.

Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species' survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In a partnership with the Tennessee Nature Conservancy (TNC), Tennessee Wildlife Resources Agency (TWRA), and Tennessee Department of Environment and Conservation (TDEC) Division of Natural Heritage, the Service developed a State Conservation Agreement for Cave Dependent Species in Tennessee (SCA). The SCA targets unlisted but rare species and protects these species through a suite of proactive conservation agreements. The goal is to preclude the need to list these species under the ESA. This agreement covers middle and eastern Tennessee and will benefit water quality in many watersheds within the State.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates but other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

### *Partners for Fish and Wildlife Program*

The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types that benefit native fishes and wildlife. The program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, shorebirds, neotropical migratory songbirds).

Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

#### *HOW TO PARTICIPATE*

- Interested landowners contact a Partners for Fish and Wildlife Biologist to discuss the proposed project and establish a site visit.
- A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.
- Proposed cost estimates are discussed by the Service and landowner.
- A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service's Ecosystem team for ranking and then to the Regional Office for funding.
- After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).
- Project installation begins.
- When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement.

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Tennessee Ecological Services Field Office at (931)-528-6481 or visit their website at <http://www.fws.gov/cookeville/>.

**5.2.D. Tennessee Valley Authority (TVA).** Tennessee Valley Authority's (TVA) goals for the 21st century are to generate prosperity for the Tennessee Valley by promoting economic development, supplying low-cost, reliable power, and supporting a thriving river system. TVA is committed to the sustainable development of the region and is engaged in a wide range of watershed protection activities. TVA formed 7 multidisciplinary Watershed Teams to help communities across the Tennessee Valley actively develop and implement protection and restoration activities in their local watersheds. These teams work in partnership with business, industry, government agencies, and community groups to manage, protect, and improve the quality of the Tennessee River and its tributaries. TVA also operates a comprehensive monitoring

program to provide real-time information to the Watershed Teams and other entities about the conditions of these resources. The following is a summary of TVA's resource stewardship activities in the Little Tennessee River watershed.

### Reservoir Monitoring

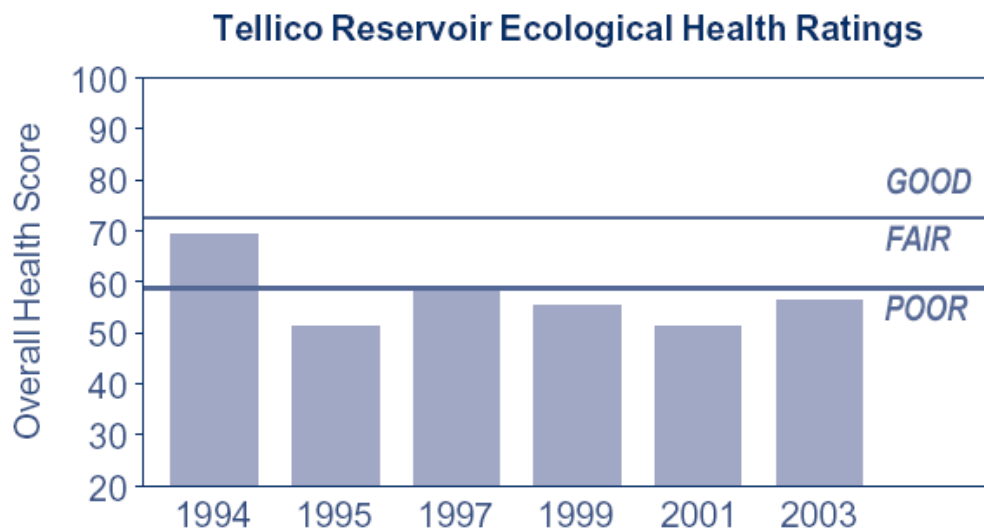
*Reservoir Ecological Health:* TVA's Reservoir Ecological Health Monitoring program is designed to provide the necessary information from five key ecological indicators (dissolved oxygen, chlorophyll, fish community, benthic macroinvertebrates, and sediment contaminants [PCBs, Pesticides, and Metals]) to evaluate current conditions, provide data for comparing future water quality conditions, and provide for assessments as needed for current and future operations and development.

A part of this monitoring program has been to communicate the data in an easily understandable format. TVA's approach has been to use a Reservoir Ecological Health Score. The ecological health scoring process is designed such that results from each of the five indicators are evaluated based on TVA's reservoir evaluation system and assigned a rating ranging from 1 (poor) to 5 (excellent). To arrive at an overall health evaluation for a reservoir, the sum of the ratings from all sites are totaled, divided by the maximum possible rating for that reservoir, and expressed as a percentage.

TVA monitors ecological conditions at 69 sites on 31 reservoirs. TVA monitored the quality of water resources in Tellico Reservoir annually from 1991 through 1995 to establish baseline data on ecological health under a range of weather and flow conditions. Tellico Reservoir is now monitored every other year. Monitoring is conducted at the forebay, or deep still water near the dam, (LTRM 1.0) and at a mid-reservoir site (LTRM 15.0).

The following chart present Reservoir Ecological Health scores for each year for which data are comparable.

Reservoir Ecological Health Ratings for Tellico Reservoir (1994-2003):





Tellico Reservoir rated poor in monitoring by TVA in 2003. The ecological health score for Tellico has varied over the years from poor to fair. The results from each of the five indicators in 2003 follow:

Dissolved oxygen rated fair near Tellico Dam due to low concentrations near the bottom and good at the mid-reservoir monitoring location. Dissolved oxygen ratings near the dam have shown the most variation through time: good in 1994, poor in 1995, fair in 1997, good in 1999, and poor in 2001.

Chlorophyll rated poor at both monitoring locations. Concentrations were higher than expected given the nutrient-poor soils in the upstream watershed. Higher chlorophyll levels are expected at the forebay monitoring location because of the exchange of water from the highly productive forebay of Fort Loudoun Reservoir via the canal connecting the two reservoirs. However, that does not explain the high chlorophyll levels observed at the mid-reservoir site. The average summer chlorophyll levels at this site have increased substantially from 1991 to 2003.

The fish community rated fair at both monitoring locations. The diversity of species collected was in line with what was expected for Tellico, but the number of fish collected was relatively low.

As in previous years, bottom life rated poor at both monitoring locations because few animals were found and most were able to tolerate poor conditions. Sporadic low dissolved oxygen levels and cold bottom water are likely contributing factors.

Sediment quality rated good at both locations. No pesticides or PCBs were detected, and concentrations of metals were within the expected background levels.

Public and Industrial Water Supplies: Adequate water of good quality is essential for sustained population growth and economic development. In conjunction with routine water quality monitoring efforts conducted as part of Reservoir Ecological Health Monitoring, TVA collects additional water samples to be analyzed for parameters of interest to public and industrial water supplies. The purpose of these additional collections is to provide data for use in siting new water supply facilities and determining appropriate treatment design. Also, data are available to domestic water suppliers to assist in water treatment operations and diagnosis of abnormal conditions.

More information about Reservoir Ecological Health Monitoring in the Little Tennessee River watershed can be obtained by contacting Tyler Baker at (423)-876-6733 or [tfbaker@tva.gov](mailto:tfbaker@tva.gov) or by visiting TVA's internet site (<http://www.tva.gov>).

*Bacteriological sampling:* Recreation is an important objective of TVA's integrated river resource management system. TVA develops, maintains, and promotes public use of several recreational sites. Increased public knowledge about bacterial contamination has heightened the interest in bacteriological levels in recreational waters by both TVA and our stakeholders. Each summer, about 250 swimming areas and informal water contact recreational sites throughout the Tennessee Valley are tested for fecal coliform and/or *Escherichia coli* (*E. coli*) bacteria by TVA's Resource Stewardship. These sites include those operated by TVA and many operated by other agencies. The site list is

reexamined annually by the appropriate watershed teams and other TVA organizations to ensure the most heavily used sites are monitored.

TVA monitored thirteen sites on or around Tellico Reservoir for *E. coli* in 2004. Bacteriological water sampling is conducted between Memorial Day and Labor Day when people are most likely to be recreating. Resource Stewardship conducts ten tests within a 30-day period at each site to establish a geometric mean for the indicator bacteria. The 2004 sampling locations were:

Site Name	Location	Type of Site
Lotterdale Cove Recreation Area Beach	LTRM 9.6R	swim
Vonore City Recreation Area Beach	Island Creek M 2.6; LTRM 16.5L	swim
Toqua Recreation Area Beach	Harrison Branch M 1.4; LTRM 22.2L	swim
Notchy Creek Recreation Area Beach	Notchy Creek M 2.2; Tellico RM4.6L	swim
Notchy Creek Boat Ramp at Monroe County Day Use Area	Notchy Creek M 2.0	boat ramp
Fort Loudoun State Park Boat Ramp	LTRM 19.8L	boat ramp
Ball Play Bridge (Informal Recreation Site) Swim Area	Ball Creek Mile 1.3 at bridge; Tellico RM 7.5	swim
Harrison Recreation Area Swim Area	LTRM 30.8R	swim
Slough opposite Lotterdale Cove (informal)	LTRM 9.6R	swim
Nine Mile Bridge (informal)	LTRM 20.R Nine Mile Creek-Mile 2	swim
TWRA Big Creek River Access Site	Tellico RM 18.1L	boat ramp
Tellico Day Use Area	LTRM 0.4L	swim
Tellico Dam Reservation Boat Ramp	LTRM 0.4L	boat ramp

All the sites were within the state of Tennessee guidelines for water contact with three exceptions. Elevated bacteria levels were observed on one occasion at Big Creek River access site, Tellico Dam Reservation boat ramp, and Toqua Recreation Area beach.

*Fish Flesh Toxic Contaminants:* State agencies are responsible for advising the public of health risks from eating contaminated fish. TVA assists the states by collecting and analyzing fish from TVA reservoirs. TVA collected channel catfish and largemouth bass from the reservoir for tissue analysis in the autumn of 2003. Catfish were analyzed for an array of contaminants (including pesticides and PCBs). Largemouth bass were analyzed for mercury. The results have been provided to state agencies in Tennessee.



More information on bacteriological and fish tissue monitoring on Tellico Reservoir can be obtained by contacting Rebecca Hallman at (423)-876-6736 or [rlhallman@tva.gov](mailto:rlhallman@tva.gov) by visiting TVA's internet site (<http://www.tva.gov>).

### Stream Bioassessment.

The condition of water resources in Fort Loudoun watershed streams is measured using three independent methods; Index of Biotic Integrity (IBI), number of mayfly, stonefly, and caddisfly taxa (EPT), and Habitat Assessment. Not all of these tools were used at each stream sample site.

*IBI:* The index of biotic integrity (IBI) assesses the quality of water resources in flowing water by examining a stream's fish assemblage. Fish are useful in determining long-term (several years) effects and broad habitat conditions because they are relatively long-lived and mobile. Twelve metrics address species richness and composition, trophic structure (structure of the food chain), fish abundance, and fish health. Each metric reflects the condition of one aspect of the fish assemblage and is scored against reference streams in the region known to be of very high quality. Potential scores for each of the twelve metrics are 1-poor, 3-intermediate, or 5-the best to be expected. Scores for the 12 metrics are summed to produce the IBI for the site. The following table associates IBI ranges with attributes of fish assemblages.

<b>Attributes</b>	<b>IBI Range</b>
Comparable to the best situations without influence of man; all regionally expected species for the habitat and stream size, including the most intolerant forms, are present with full array of age and sex classes; balanced trophic structure.	58-60
Species richness somewhat below expectation, especially due to loss of most intolerant forms; some species with less than optimal abundance or size distribution; trophic structure shows some signs of stress.	48-52
Signs of additional deterioration include fewer intolerant forms, more skewed trophic structure (e.g., increasing frequency of omnivores); older age classes of top predators may be rare.	40-44
Dominated by omnivores, pollution-tolerant forms, and habitat generalists; few top carnivores; growth rates and condition factors commonly depressed; hybrids and diseased fish often present.	28-34
Few fish present, mostly introduced or tolerant forms; hybrids common; disease, parasites, fin damage, and other anomalies regular.	12-22

*EPT:* The number and types of aquatic insects, like fish, are indicative of the general quality of the environment in which they live. Unlike fish, aquatic insects are useful in determining short-term and localized impacts because they are short-lived and have limited mobility. The method TVA uses involves only qualitative sampling and field identification of mayflies (Ephemeroptera), stoneflies (Plecoptera), and caddisflies (Trichoptera) to the family taxonomic level (EPT). The score for each site is simply the

number of EPT families. The higher EPT scores are indicative of high quality streams because these insect larvae are intolerant of poor water quality.

*Habitat Assessment:* The quality and quantity of habitat (physical structure) directly affect aquatic communities. Habitat assessments are done at most stream sampling sites to help interpret IBI and EPT results. If habitat quality at a site is similar to that found at a good reference site, any impacts identified by IBI and EPT scores can reasonably be attributed to water quality problems. However, if habitat at the sample site differs considerably from that at a reference site, lower than expected IBI and EPT scores might be due to degraded habitat rather than water quality impacts.

The habitat assessment method used by TVA (modified EPA protocol) compares observed instream, channel, and bank characteristics at a sample site to those expected at a similar high-quality stream in the region. Each of the stream attributes listed below is given a score of 1 (poorest condition) to 4 (best condition). The habitat score for the sample site is simply the sum of these attributes. Scores can range from a low of 10 to a high of 40.

1. Instream cover (fish)
2. Epifaunal substrate
3. Embeddedness
4. Channel Alteration
5. Sediment Deposition
6. Frequency of Riffle
7. Channel Flow Status
8. Bank vegetation protection - Left bank and right bank, separately
9. Bank stability - Left bank and right bank, separately
10. Riparian vegetation zone width - Left bank and right bank, separately

*Sample Site Selection:* EPT sampling and fish community assessment (IBI) are conducted at the same sites. Site selection is governed primarily by study objectives, stream physical features, and stream access. TVA's objective is to characterize the quality of water resources within a sub-watershed (11-digit hydrologic unit). Sites are typically located in the lower end of sub-watersheds and at intervals on the mainstem to integrate the effects of land use. A total of 24 sites have been sampled in the Little Tennessee watershed since 1995. These sites are typically sampled every five years to keep a current picture of watershed condition.

Details about stream bioassessment sampling sites and scores can be obtained by writing Charles Saylor at Tennessee Valley Authority, PO Box 920, Ridge Way Road, Norris, TN 37828 or calling him at (865)-632-1779. Email address: [cfsaylor@tva.gov](mailto:cfsaylor@tva.gov)

### Coalition Support.

*Citizen Based Organizations:* Citizen based watershed organizations can play a critical role in watershed protection. TVA's watershed teams work to strengthen these organizations by providing assistance in the areas of understanding the local watershed, its conditions, impacts, and threats; developing and implementing strategies to protect or improve resource quality; fundraising; river issues; and organizational development. In

1999, TVA initiated a series of workshops for watershed organizations. Past workshops have covered state and federal water quality protection programs, grant writing, fund raising, communication/outreach, and strategic planning.

The Watershed Association of the Tellico Reservoir (WATeR) is a citizen based organization formed to protect and improve the lower Little Tennessee River from Tellico Dam upstream to Chilhowee Dam, incorporating a major portion of the Tellico River. TVA supports the WATeR by providing financial and technical assistance. For information about WATeR contact Bill Waldrop at (865)-458-0506.

*Inter-agency Partnerships:* The benefits of watershed partnerships are well documented. No one unit of government, agency, group or individual has all the knowledge, expertise or resources to address all watershed issues. Partnerships can tap a diversity of energy, talent, and ideas. Watershed partnerships can also promote a more efficient use of limited financial and human resources and can identify innovative and efficient means of improving or protecting water quality. The Little Tennessee Watershed Team partners with various local, state, and federal partners including Blount County Soil and Water Conservation District, Loudon County Soil and Water Conservation District, Tennessee Department of Agriculture, Tennessee Department of Environment and Conservation, US Forest Service, and the UT Agricultural Extension Service with efforts to improve and protect water resources in the Little Tennessee watershed.

#### Outreach.

*National Clean Boating Campaign:* The National Clean Boating Campaign is a partnership program which highlights the importance of clean water so boating will continue to be fun and safe for future generations. The program demonstrates how boaters can be good stewards of their water environment through best boating and marina practices.

*Clean Marina Initiative:* The Tennessee Valley Clean Marina Initiative is an effort by TVA to promote environmentally-responsible marina practices. This voluntary program, established in support of the National Clean Boating Campaign, helps marina operators protect the resource that provides them with their livelihood.

#### Protection and Restoration Activities.

*Promote Best Management Practices:* TVA provides funding and technical expertise to assist with installation of best management practices (BMPs) that will reduce non-point pollution. TVA also works with partners to promote use of BMPs. For example, TVA provided assistance to develop “model farms” in the Baker Creek watershed and has plans to expand the program into the Ninemile Creek watershed. These “model farms” demonstrate a variety of BMPs.

*Support Clean Up Efforts:* TVA supports several group litter clean up efforts on Tellico Reservoir. TVA, in conjunction with the US Forest Service, also supports clean up

efforts on the Upper Tellico River. Volunteers have removed several hundred tons of trash from the Little Tennessee watershed in the last five years.

*Shoreline stabilization:* Between 2000 and 2004, the Little Tennessee Watershed Team successfully stabilized over 15,350 feet of critically eroding reservoir shoreline. Working closely with cooperators and partners, the team has implemented innovative and cost effective methods for minimizing the erosion from these public lands. In addition, the team provides technical assistance to stakeholders through individual landowner meetings and public workshops for those interested in stabilization on private shoreline areas. Additional stabilization is scheduled for 2005.

*Promote Riparian Buffers:* An effective line of water quality protection is maintaining the vegetative plant cover along waterbodies. TVA encourages waterfront property owners to maintain or establish vegetated riparian buffers by providing information and materials to the riparian property owners. TVA has also developed a series of 11 fact sheets that will enable riparian property owners to restore, manage, and be better stewards of riparian land. The fact sheets are available on the TVA internet site <http://www.tva.com/river/landandshore/index.htm>.

Further information on TVA's Watershed Assistance activities in the Little Tennessee Watershed can be obtained by writing the Little Tennessee Watershed Team at: Tennessee Valley Authority, 804 Highway 321 North (HWY 1A-LCT), Lenoir City, TN 37771-6440 or calling them at (865)-988-2420.

**5.2.E. USDA – Forest Service.** The USDA Forest Service manages approximately 640,000 acres in Tennessee (Cherokee National Forest (CNF)). This ownership includes about 121,000 acres within the Little Tennessee River Watershed in Tennessee. The general mission of the Forest Service is to achieve an ecological and sustainable, multiple use approach to land management that meets the diverse needs of people. In order to achieve this mission, a watershed-based approach to ecosystem management has been adopted.

A variety of management activities occur within the Little Tennessee River watershed on national forest lands. Some of these include:

*Ecosystem Management and Restoration.* Prescribe burning and vegetation treatments are used to meet a variety of ecosystem-based management objectives. Each year, prescribed fire is used to reduce hazardous fuel loads and improve wildlife habitat conditions within the watershed on CNF lands. Thinning and regeneration cuts are also used on selected areas where timber harvest is necessary to achieve restoration or wildlife habitat objectives. The Little Tennessee River Watershed has been severely impacted by the southern pine beetle in the past three years. In the foreseeable future, restoration efforts will focus on needs associated with stands damaged by the southern pine beetle.

*Recreation Management.* A variety of recreation uses occur on National Forest lands within this watershed. Hiking, whitewater boating, fishing, camping, horse use, camping, scenic viewing and hunting are some of the many uses. In the upper Tellico River watershed in North Carolina, a nationally known off-highway vehicle (OHV) area

provides opportunity for this form of recreation. There are currently about 24,000 acres of designated wilderness in the Little Tennessee River watershed in Tennessee and another 10,500 acres have been recommended to Congress for wilderness designation. The Tellico River has been found to be eligible for designation by Congress for recreational status as part of the National Wild and Scenic River system.

*Inventory and Monitoring.* There are 146 perennial streams capable of supporting fish and approximately double that number of perennial and intermittent streams that support other aquatic organisms in the Little Tennessee River Watershed on National Forest system lands. Three-pass electrofishing, seining, snorkeling, and instream habitat surveys are conducted within each stream approximately once every ten years. Since 1999, fifty-nine surveys have been conducted in the Little Tennessee River Watershed. A total of 62 species of fish have been documented in these streams including three federally listed species: smoky madtom, yellowfin madtom, and duskytail darter. These rare species are monitored every year through snorkel surveys. These same species, along with the spotfin chub have been identified as extirpated from the Tellico River. Re-introduction began in 2001 and continues today.

The aquatic habitat surveys document physical characteristics in the stream. Degraded conditions are identified and corrected as needed. The most frequently documented degradation is a lack of large wood in the stream channel. Log structures have been installed to alleviate a portion of this problem.

The Forest Service works with TWRA, TVA and Trout Unlimited to restore and monitor brook trout populations in eleven streams.

Suspended sediment is monitored at several locations in the upper Tellico River watershed. Much of this monitoring is conducted in headwater streams in North Carolina that are within the OHV area. Some of the monitoring is done downstream in Tennessee (Citico Creek, Bald River).

*Other Management Activities.* A variety of additional management activities occur within the Little Tennessee River watershed on national forest lands. These include:

- Collaborative planning with a variety of other Federal, State and local agencies and private individuals to identify and prioritize watershed improvement needs on public and private lands
- Watershed improvements including road and trail decommissioning to reduce soil loss and sediment yield
- Environmental education programs with school, scouting and other groups

Further information about the Cherokee National Forest can be found on its homepage at <http://www.southernregion.fs.fed.us/cherokee>.

**5.2.F. National Park Service.** Approximately 3,400 kilometers (2,100 miles) of cold and cool water streams are found within the Great Smoky Mountains National Park (GRSM). A diverse fish community is found in about 1,280 kilometers (800 miles) of the total and the greatest diversity of species is found in the larger streams adjacent to the Park boundary. Park staff, assisted by personnel from TWRA and volunteers from UT and

Trout Unlimited, sample a small number of large streams annually. Backpack electrofishing techniques are used to collect data on species composition, year class strength, density and biomass.

Data were collected from 12 sites in the Little River/Little Tennessee Watershed in 2003. These data indicate that fish species diversity increases from the headwaters to the boundary. The density and biomass values for each species were within the normal range of annual variation observed from 1990 – 2002. Life history information for rainbow trout indicates that the maximum life span for this species is about four years. Brown trout typically live 5 – 8 years and can reach 8 – 10 pounds in weight. Based on the data for 2003, Little River/Little Tennessee contained approximately 2,000 trout per mile of stream.

The aquatic macroinvertebrate component of the Inventory and Monitoring program has been operating in the Park since 1992. This aspect of the program is designed to provide data on the health of streams and aquatic biodiversity, and to determine relationships among macroinvertebrates, fishes, and water quality.

In 2003, park stream samples that fall within the Little Tennessee watershed included Abrams, Silers, Sams, and Starkey Creeks, and Little River. Analysis of this monitoring data reveals a continuing increase in the number of new taxa encountered each year. Over the years, a total of over 600 taxa has been documented in streams and the species accumulation curve is still climbing, indicating that there are more taxa yet to be encountered. The Rapid Bioassessment scores for each site, based on a Biotic Index and EPT values, have generally been in the “good” to “excellent” categories. This type of long-term trend information is critical for detecting any biotic effects of pollution in the park’s aquatic ecosystems.

These sites were not sampled in 2004, due to budget restrictions.



### **5.3. STATE PARTNERSHIPS.**

**5.3.A. TDEC Division of Water Supply.** The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

- 1) Delineate the drinking water source protection area
- 2) Inventory known and potential sources of contamination within these areas
- 3) Determine the susceptibility of the water supply system to these contaminants
- 4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
- 5) Implement management measures to prevent, reduce or eliminate threats
- 6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

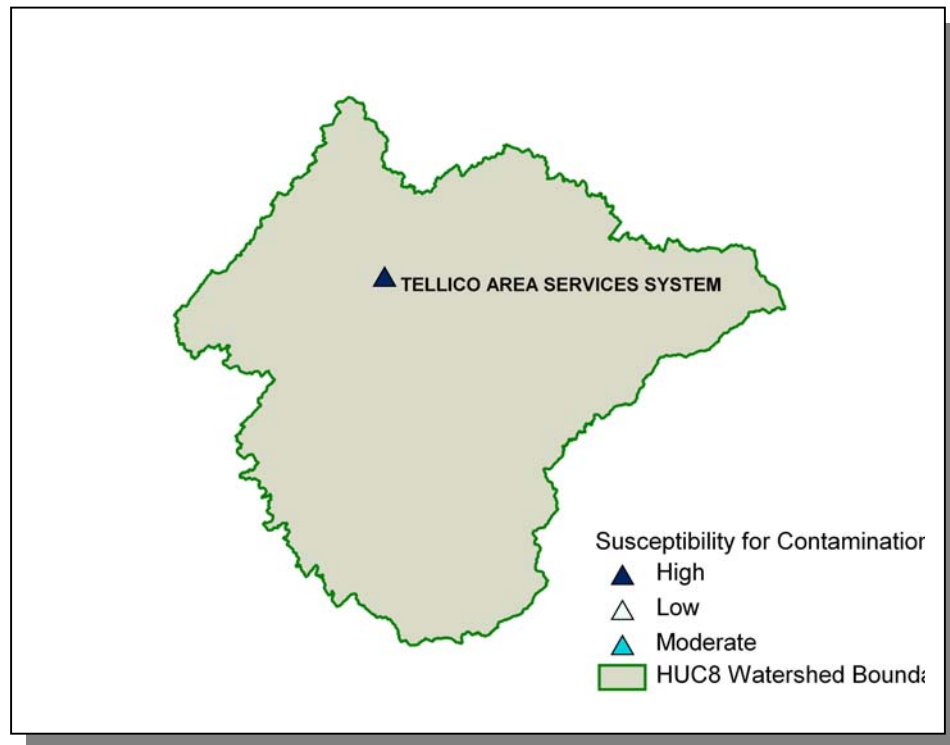
Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst (limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and spring), since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions were available until 2004). The assessments are intended to enhance the protection of drinking water supplies within existing programs at the federal, state and local levels. Source water assessments were mandated and funded by Congress. Source water protection will be

left up to the individual states and local governments without additional authority from Congress for that progression.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at <http://www.state.tn.us/environment/dws> as well as other information regarding the Source Water Assessment Program and public water systems.



**Figure 5-1. Susceptibility for Contamination in the Little Tennessee River Watershed.**

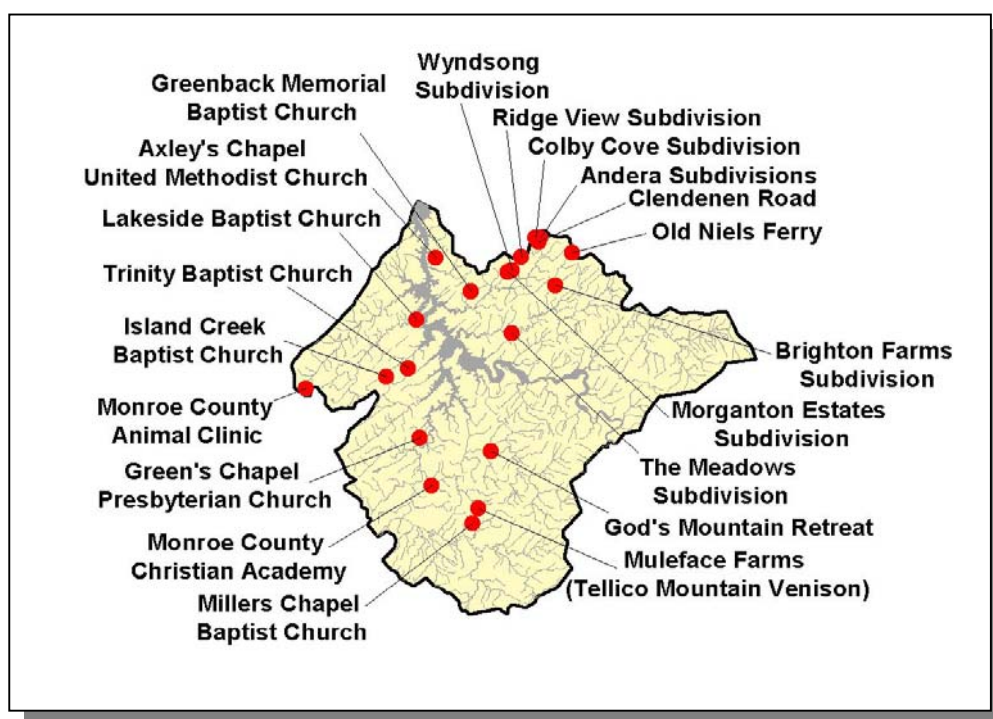
For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at <http://www.tdec.net/water.shtml>.



**Figure 5-2. Locations of Community and Non-Community Public Water Supply Intakes in the Tennessee Portion of the Little Tennessee River Watershed.**



**Figure 5-3. Locations of Community and Public Groundwater Supply Intakes in the Tennessee Portion of the Little Tennessee River Watershed.**



**Figure 5-4. Locations of UIC (Underground Injection Control) Sites in the Tennessee Portion of the Little Tennessee River Watershed.** Injection wells include stormwater sinkholes modified for drainage, commercial/industrial septic tanks, and large capacity septic tanks.

**5.3.B. State Revolving Fund.** TDEC administers the state's Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. TDEC has awarded loans totaling approximately \$550 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero percent to market rate, depending on the community's per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The

maximum loan term is 20 years or the design life of the proposed wastewater facility, whichever is shorter.

TDEC maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project's priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

For further information about Tennessee's Clean Water SRF Loan Program, call (615) 532-0445 or visit their Web site at <http://www.tdec.net/srf>.



**Figure 5-5. Location of Communities Receiving SRF Loans or Grants in the Tennessee Portion of the Little Tennessee River Watershed.** More information is provided in Appendix V.



**5.3.C.** Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section consists of the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program basically funds three types of programs:

- **BMP Implementation Projects.** These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.
- **Monitoring Projects.** Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the Little Tennessee River Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program (U.S. Environmental Protection Agency Assistance Agreements C9994674-00-0, C9994674-01-0, and C9994674-02-0).
- **Educational Projects.** The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

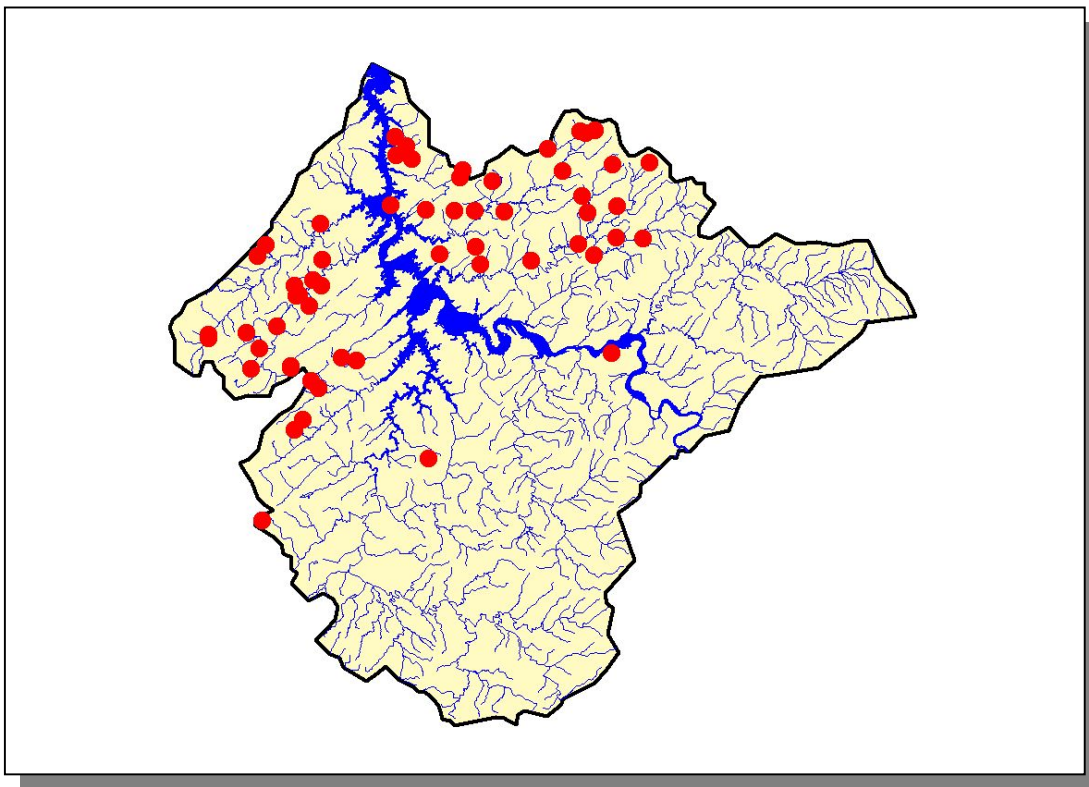
Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the



TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information forestry BMPs is available at:

<http://tennessee.gov/agriculture/forestry/BMPs.pdf>, and the complaint form is available at: <http://tennessee.gov/environment/wpc/logform.php>.



**Figure 5-6. Location of BMPs installed from 1999 through 2003 in the Tennessee Portion of the Little Tennessee River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs. More information is provided in Appendix V.**

**5.3.D.** North Carolina Department of Environment and Natural Resources, Division of Water Quality. Basinwide planning is a non-regulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. In an approach similar to that employed in the State of Tennessee, the North Carolina Division of Water Quality (DWQ) prepares water quality plans for each of 17 major river basins in the state according to a defined schedule. The plans are prepared in order to communicate to

policymakers, the regulated community and the general public the state's rationale, approaches and long-term management strategies for each river basin. Each plan is circulated for public review and presented at public meetings in the basin. After implementation, the plans are re-evaluated, based on follow-up water quality monitoring, and updated at five-year intervals.

DWQ initiated basinwide planning activities in 1990, when it began conducting water quality monitoring for the first basinwide plan, published in 1993. Since then, DWQ has produced plans for all 17 river basins and has begun to update those plans for each basin. The new plans emphasize changes in water quality and give the status of recommendations made in the previous plan. The first *Little Tennessee River Basinwide Water Quality Management Plan* was published in 1997; DWQ updated this plan in 2002, and will do so again in 2007.

*Overview of the North Carolina Portion of the Little Tennessee River Basin.* In the North Carolina portion of the basin, the Little Tennessee River and its major tributaries, the Nantahala and Tuckasegee Rivers, drain almost 1,800 square miles of the southwestern portion of the state. The Tennessee Valley Authority (TVA) and Duke Energy regulate water flow for flood control and the production of hydroelectric power via three major impoundments: Nantahala Lake, Fontana Lake, and Santeetlah Lake.

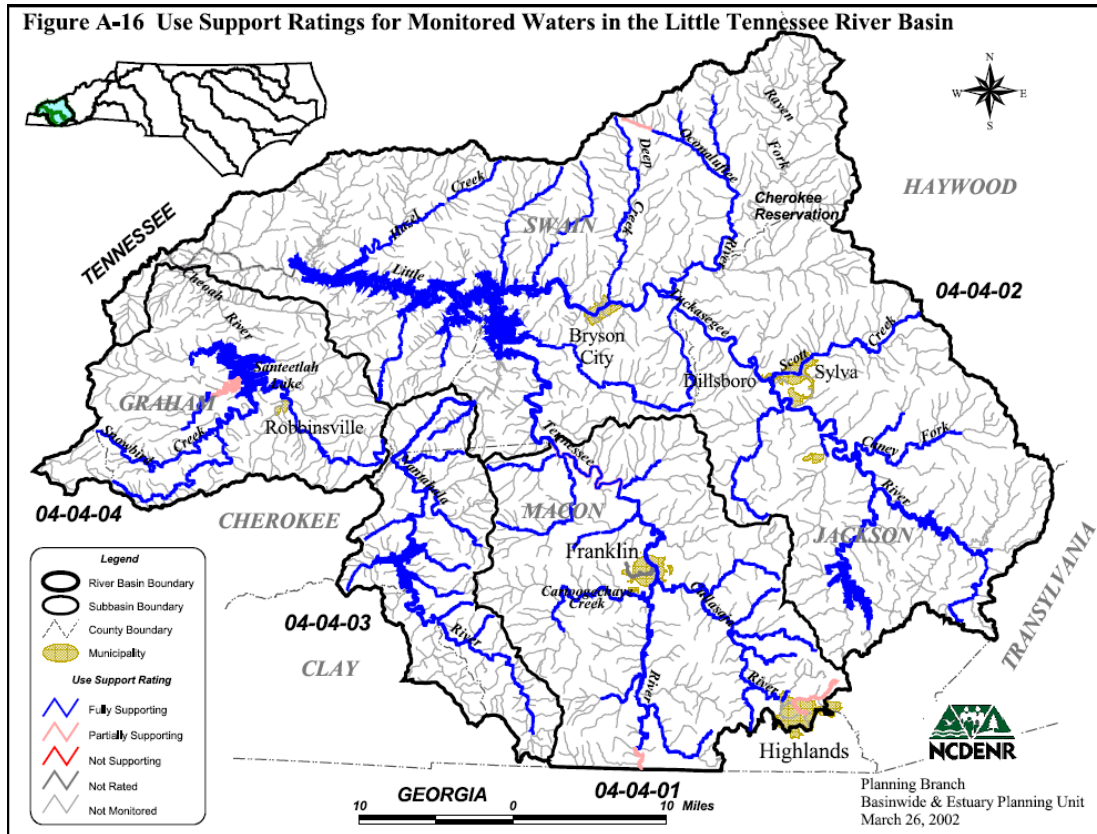
The Little Tennessee River in North Carolina is thought to contain its full assemblage of native aquatic life. Even though the watershed above Fontana Lake represents only one percent of the entire Tennessee River basin, it contains 25 percent of all fish species found in the much larger river system. Water quality in the basin is generally excellent. Trout waters are abundant, and many streams are classified High Quality or Outstanding Resource Waters.

The land comprising the Little Tennessee River basin in North Carolina is mountainous and primarily rural. Nearly 89 percent of the land is forested, and less than 5 percent falls into the urban/built-up category. More than half of the land in the basin is publicly owned and lies within the Great Smoky Mountains National Park or the Nantahala National Forest. Land use comparisons between 1982 and 1997 show a significant decrease in private forested land (-23,300 acres) and substantial increases in the urban/developed (+30,200 acres) and federal (+11,000 acres) land use categories. Since most of the federal land in the basin is forested, it is likely that the amount of forested land actually increased over the fifteen-year period (+6,900 acres). The estimated population of the basin in 2000 was 79,493, and the population is projected to increase 31 percent by 2020. While the resident population may be fairly low, the basin experiences significant seasonal population fluctuations from recreation and tourist travel.

The North Carolina Natural Heritage Program identifies areas that have outstanding conservation value, either because they contain rare or endangered species, or because an area provides an excellent, intact example of an ecological community that naturally occurs in the state. The Little Tennessee River basin has 54 aquatic and terrestrial natural areas, 20 of which are considered nationally significant and 34 state significant. Four reaches of river are considered Significant Aquatic Habitats, and there are 37 federally listed Rare, Threatened, or Endangered aquatic dwelling species.

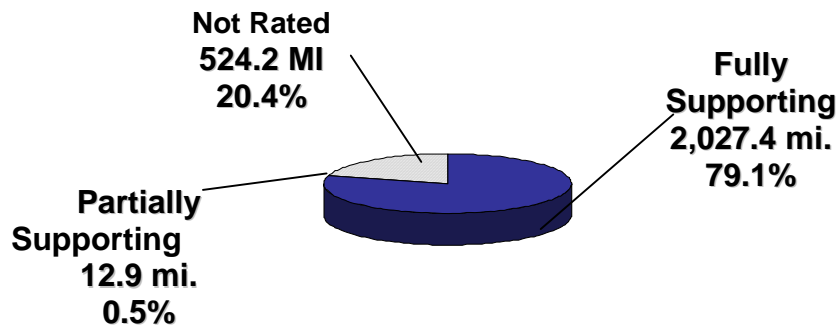
*Assessment of Water Quality.* In a manner similar to that employed by TDEC, surface waters in North Carolina are classified according to their best uses. Determining how well a waterbody supports its uses (*use support* status) is an important method of interpreting water quality data and assessing water quality. Surface waters are rated *fully supporting* (FS), *partially supporting* (PS) or *not supporting* (NS). The ratings refer to whether the classified uses of the water (i.e., aquatic life protection, primary recreation and water supply) are being met. For example, waters classified for fish consumption, aquatic life protection and secondary recreation (Class C for freshwater) are rated FS if data used to determine use support meet certain criteria. However, if these criteria were not met, then the waters would be rated as PS or NS, depending on the degree of degradation. Waters rated PS or NS are considered to be impaired. Waters lacking data, having inconclusive data, or for which criteria have not been developed, are listed as not rated (NR).

DWQ also assesses ecosystem health and human health risk through the development of use support ratings for six categories: aquatic life and secondary recreation, fish consumption, shellfish harvesting, primary recreation, water supply, and "other" uses. These categories are tied to the uses associated with the primary classifications applied to NC rivers and streams. A single water could have more than one use support rating corresponding to one or more of the six use support categories. For many waters, a use support category will not be applicable (N/A) to the use classification of that water (e.g., drinking water supply is only applied to Class WS waters). Currently, 12.9 miles and 280 lake acres are partially supporting in the Little Tennessee River Basin.

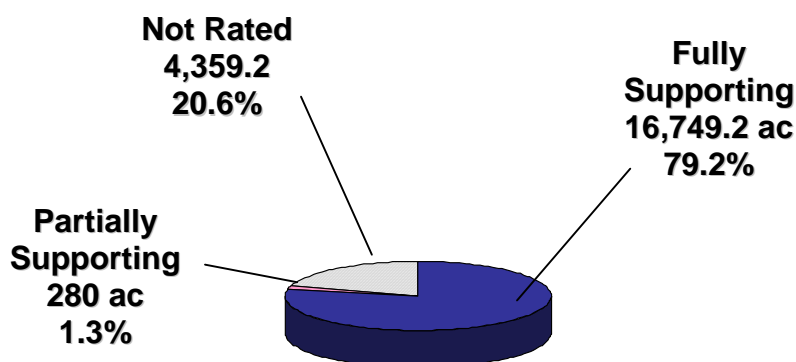


**Figure 5-7 (Figure A-16). Use Support Ratings in the North Carolina Portion of the Little Tennessee River Basin.**

**Aquatic Life/Secondary Recreation.** The aquatic life/secondary recreation use support category is applied to all waters in North Carolina. Therefore, this category is applied to the total number of stream miles (2,564.6) and lake acres (21,158.4) in the North Carolina portion of the Little Tennessee River basin. Approximately 20 percent of stream miles (524.7) and 33 percent of lake acres (6,881) were monitored for the protection of aquatic life and secondary recreation by DWQ during this basinwide planning cycle. Impaired waters account for 2.4 percent of monitored stream miles and 4.1 percent of monitored lake acres. A basinwide summary of current aquatic life/secondary recreation use support ratings is presented in Figure 5-7 and Figure 5-8.



**Figure 5-8. Aquatic Life/Secondary Recreation Use Support Ratings for Streams in the North Carolina portion of the Little Tennessee River Basin (1999).**



**Figure 5-9. Aquatic Life/Secondary Recreation Use Support Ratings for Lakes in the North Carolina portion of the Little Tennessee River Basin (1999)**

*Primary Recreation.* There are 237.3 stream miles and 16,879.2 lake acres currently classified for primary recreation in the Little Tennessee River basin. Approximately 58 percent of stream miles (136.8) and 40 percent of lake acres (6,731) were monitored for the protection of primary recreation by DWQ over the past five years. Impaired waters account for 4.2 percent of monitored lake acres. Primary recreation use support ratings are based on swimming advisories issued by the NC Department of Health and Human Services (DHHS).

*Fish Consumption.* Like the aquatic life/secondary recreation use support category, fish consumption is also applied to all waters in the state. Fish consumption use support ratings are based on fish consumption advisories issued by the NC Department of Health and Human Services. Currently, there are no fish consumption advisories specific to the NC portion of the basin. Therefore, all waters are considered to be fully supporting the fish consumption category. No waters were monitored for fish consumption during this basinwide cycle because of the lack of any significant contaminant concerns in the Little Tennessee River basin.

*Water Supply.* There are 530.6 stream miles and 2,426 lake acres currently classified for water supply in the Little Tennessee River basin. All were evaluated within the past five years; all are fully supporting.

*Strategies for Addressing Notable Water Quality Impacts in Unimpaired Waters.* Often during DWQ's use support assessment, water quality concerns are documented for waters that are fully supporting designated uses. While these waters are not considered impaired, attention and resources should be focused on these waters over the next basinwide planning cycle to prevent additional degradation or facilitate water quality improvement.

Water quality problems in the Little Tennessee River basin are varied and complex. Inevitably, many of the water quality impacts noted are associated with human activities within the watershed. Solving these problems and protecting the surface water quality of the basin in the face of continued growth and development will be a major challenge. Voluntary implementation of BMPs is encouraged and continued monitoring is recommended. DWQ will notify local agencies and others of water quality concerns for these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding.

The most pressing water quality concern for these streams and throughout the Little Tennessee River basin is habitat degradation. Habitat degradation includes sedimentation, bank erosion, channelization, lack of riparian vegetation, loss of pools or riffles, loss of woody habitat, and streambed scour. It is attributed to nonpoint source pollution. The primary sources of nonpoint source pollution in the Little Tennessee River basin are runoff from construction sites, pasturelands, roads and developed areas. The task of quantifying nonpoint sources of pollution and developing management strategies for these waters is resource intensive. DWQ plans to notify local agencies and others of water quality concerns for these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding for these unimpaired waters.

*Local Water Quality Improvement Initiatives.* There are several initiatives in the Little Tennessee River basin dedicated to improving and protecting water quality. The Little Tennessee Watershed Association (LTWA), Inc. is organized to work with public agencies, conservation interests, community groups, and public and private landowners to develop and implement a strategy for the conservation and improvement of the water quality and habitat of the Little Tennessee River and its tributaries above the Fontana Reservoir. The LTWA presently operates four major projects: stream restoration; stream monitoring; education; and stream stewardship. Long-term data collection allows LTWA to measure the effect of restoration efforts. Through the stewardship program, LTWA rewards landowners for their own efforts to protect the watershed. The educational program builds public support for conservation efforts.

The Watershed Association for the Tuckasegee River (WATR) is a fairly new group of grassroots-organized citizens who wish to see their community keep its peaceful character amidst booming growth. One of the primary objectives of WATR is to increase citizen involvement and activity on behalf of the river. In 2004, WATR began a locally based restoration on Savannah Creek, with support from EPA.

Formed in 1999 as a local, citizen-based watershed organization for the upper Cullasaja River watershed on the Highlands Plateau, the Upper Cullasaja Watershed Association (UCWA) has successfully initiated a wide range of water resource quantity and quality projects. UCWA worked with the NC Division of Water Resources and the US Geological Survey (USGS) to obtain joint funding and installation of a USGS flow gauging station on the Cullasaja River in July 2001, after a 30-year hiatus in long-term streamflow measurement on this river. Additional work with DWQ and USGS groundwater specialists resulted in the restoration of regular groundwater elevation measurements in two Town of Highlands' water supply wells. Work began in 2004 on a major groundwater research project to be centered in the upper Cullasaja River watershed.

In 1995, the Little Tennessee Nonpoint Source (NPS) Team was organized by local stakeholders, with guidance from DWQ, to address water quality problems in the Little Tennessee River basin caused by nonpoint source pollution. Current members include the above non-profits, Western Carolina University, Soil and Water Conservation Districts, the Natural Resource Conservation Service, NC DWQ, EPA, and the Eastern Band of Cherokee Indians. The NPS Team serves as a mechanism to enhance communication and cooperation between groups and agencies at work in the basin, and has a long-term goal to develop a regional support center for water quality stewards.



For more information concerning water quality in the Little Tennessee River basin in North Carolina, visit the Basinwide Planning Program website:

<http://h2o.enr.state.nc.us/basinwide/>

Or contact the Little Tennessee River Basin Planner:

Little Tennessee River Basin Planner  
NC Division of Water Quality  
Planning Branch  
1617 Mail Service Center  
Raleigh, North Carolina, 27699-1617  
Phone: (919)-733-5083  
FAX: (919)-715-5637

## **5.4. LOCAL INITIATIVES.**

**5.4.A.** The Watershed Association of the Tellico Reservoir. The Watershed Association of the Tellico Reservoir (WATeR) is an all-volunteer organization dedicated to protecting and improving the environment in and around Tellico Reservoir. WATeR is non-profit and non-partisan. The focus is on issues, policies, and practices that promote clean water, air, and natural habitat so that humans can live, work, and play in harmony with native plants and animals as well as with each other. The association strives to work cooperatively with governmental agencies and private organizations with similar goals and responsibilities for environmental protection and appropriate quality economic growth. Public education and demonstration projects are emphasized to make people aware of environmentally friendly practices that affect the watershed. WATeR strives to involve all stakeholders and to represent everyone interested in preserving and enhancing the environmental quality of the Tellico Reservoir Watershed.

WATeR has four program committees: Water Quality Improvements, Nature and Hiking Trails, Environmental Education, and Shoreline Trash Collection. WATeR's accomplishments during the first three years include:

- Maintaining a dialog with TVA and TDEC to reflect membership opinion on environmental issues;
- Water quality sampling to answer questions not addressed by TVA or TDEC;
- Public meetings with expert speakers on water quality or environmental protection;
- Demonstration projects to reduce soil erosion and prevent stream sedimentation;
- Collecting tons of trash along the shoreline using hundreds of volunteers;
- Constructing a hiking trail along the eastern shore of Tellico Lake that includes bridges over ravines, trailhead parking facilities, a kiosk with maps and directions, and restrooms; and
- Demonstrating new methods for stabilizing shorelines to prevent wave erosion, intercepting runoff from lawns, and preventing ingress of Canada Geese.

Other information concerning activities of WATeR including how to contact officers of the association is available on the web at <http://www.TellicoWATeR.org>.